

Spectral Analysis According to the Vaporization Method

32-24-6-22/44

1. Beryllium--Spectra
2. Boron--Spectra
3. Beryllium--Vaporization
4. Boron--Vaporization

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PLANE I BOOK EXPLANATION

807/5004

International Conference on the Peaceful Uses of Atomic Energy. 24, Geneva, 1958.

Radiation Chemistry. [L. V. Radtsig, ed.] Khimiya radioaktivnykh i radiatsionnykh prevrashcheniy (Reports of Soviet Scientists. V. 4.; Chemistry of Radioactive Elements and Radiation Transformations) Moscow, Atomizdat, 1959. 293 p. 6,000 copies printed. (Series: Its: Study)

Ed. (this page): A. P. Vinogradov, Academician; Ed.: V. I. Labazov; Tech. Ed.: Ye. I. Muzal.

PURPOSE: This collection of articles is intended for scientists and engineers interested in the applications of radioactive materials in science and industry.

CONTENTS: The book contains 26 separate studies concerning various aspects of the chemistry of certain radioactive elements and the processes of radiation effect on matter. These reports discuss present-day methods of reprocessing irradiated nuclear fuel, research in the chemistry of mercury, thorium, uranium, plutonium, and americium, problems related to the sorption and burying of radioactive wastes, the radiolysis of aqueous solutions and of organic compounds, the mechanism of polymer chain scission, and the effect of radiation on natural and synthetic rubbers. V. I. Labazov edited the present volume. Most of the reports are accompanied by references. Contributions to individual investigations are mentioned in annotations to the Table of Contents.

Almochkov, L. P., L. L. Rykova, L. V. Lysko, L. V. Pech, and L. Z. Gorbachev. Production and Properties of Several Heavy Fluorides of Tetraivalent Plutonium (Report No. 2004) 157

Almochkov, L. P., and V. I. Koryakov. Investigations on the Chemistry of Americium (Report No. 2107) 157
[D. S. Gorbachev is mentioned as having supplied the material for the second section of this study.]

Aradinskiy, G. Ye., V. D. Nikol'skiy, G. M. Pavlov, A. Kuznetsov, and V. S. Smidit. Contribution to the Chemistry of Radioactive Barium (Report No. 2143) 166

Bel'skiy, V. I., V. D. Belitskiy, A. P. Kuznetsov, V. I. Kuznetsov, L. M. Kuznetsov, Ye. M. Kuznetsov, and G. A. Kuznetsov. Study of the Migration of Radioactive Elements in Soils (Report No. 2207) 174

Voznesenskiy, S. A., G. A. Savitskiy, P. P. Delidich, and L. I. Baskov. Identification of Low-Salt-Content and Low-Activity Waste Waters from Radiochemical Plants (Report No. 2024) 189

Bel'skiy, V. I., A. T. Avdonin, V. T. Koryakov, P. V. Kuznetsov, and others. Experimental Industrial Plant for Purification of Laboratory Waste Waters Contaminated with Radioactive Elements (Report No. 2025) 194

Bel'skiy, V. I., and Ye. M. Kuznetsov. On the Possibility of Purifying Radioactive Wastes in Deep-Water Depositions of the Ocean (Report No. 2058) 204

Prokhorov, M. A., and Ye. M. Koryakov. Investigations into the Radiochemistry of Aqueous Solutions (Report No. 2022) 211
[The investigations were carried out at the Laboratory of Radiochemistry, Laboratory of Radiation Chemistry of the Radiochemical Institute, Leningrad, under the direction of L. V. Radtsig.]

Prokhorov, M. A., V. V. Mavlikov, and A. I. Chernomir. Data on oxidation-reduction reactions taking place in aqueous solutions under the effect of gamma-radiation were obtained from investigations at the Laboratory of Radiochemistry of the Radiochemical Institute, Leningrad. The following are mentioned as having made a study of conjugate reactions such as the formation of dyes from leuco bases: V. D. Gorbachev, A. A. Zaslavskiy, L. I. Mavlikov, V. V. Koryakov, and M. Ya. Kuznetsov.]

Bel'skiy, V. I., I. Medvedevskiy, and V. V. Kuznetsov. Radiolysis and Radiation Oxidation of Organic Compounds (Report No. 2219) 219
[The following are mentioned: M. S. Kolesova and V. P. Tsvetkov,

5(2), 21(1)

AUTHORS:

SOV/78-4-5-1/46
Alenichikova, I. F., Zaytseva, L. L., Lipis, L. V.,
Fomin, V. V.

TITLE:

Separation and Investigation of the Physico-chemical Properties
of Plutonyl-chloride (Vydeleniye i izucheniye fiziko-khimiches-
kikh svoystv khloristogo plutonila)

PERIODICAL:

Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 5, pp 961-962
(USSR)

ABSTRACT:

The synthesis of plutonyl chloride was carried out by the
vacuum vaporization of a plutonyl chloride solution at room
temperature. Plutonyl chloride was isolated in form of green-
ish-yellow crystals of the composition $\text{PuO}_2\text{Cl}_2 \cdot 6\text{H}_2\text{O}$. By means
of electrons and infrared absorption spectra of the plutonyl
chloride crystals it was proved that this compound contains
 PuO_2^{2+} -ions and that no Pu(IV) is present. The spectra of the
crystals were photographed by means of the spectrograph ISP-51
(the camera had a focal length of 270 mm) within the range
of 4200 - 9800 Å. After a longer storage of the plutonyl
chloride preparation the infrared- and electron adsorption

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Separation and Investigation of the Physico-chemical Properties of Plutonyl-chloride

spectra undergo a considerable change. Absorption lines occur in such spectra which are characteristic of Pu^{4+} . Under the action of a α -radiation a reduction of Pu(VI) into Pu(IV) takes place. The analysis values of plutonyl chloride are shown in a table and the absorption spectra of various solutions and of the obtained crystal of the plutonyl chloride are shown by figures 1 - 4. There are 4 figures, 1 table, and 2 references, 1 of which is Soviet.

SUBMITTED: April 7, 1958

Card 2/2

SOV/51-6-2-32/39

AUTHORS: Vashman, A.A., Lipis, L.V. and Teterina, N.A.

TITLE: A Very-High-Frequency Source for Excitation of Spectra in Gaseous Mixtures (Sverkhvysokochastotnyy istochnik возбужdeniya spektrov smesey gazov)

PERIODICAL: Optika i Spektroskopiya, 1959, Vol 6, Nr 2, pp 260-262 (USSR)

ABSTRACT: The authors describe a magnetron circuit of 3000 Mc/s frequency which can be used for excitation of spectra of gaseous mixtures. The circuit is shown in Fig 1. The magnetron works continuously and has the following parameters: $U_a = 4150$ V, $I_a = 50-70$ mA, $U_n = 6.3$ V and the magnetic field (B) is 1200 gauss. To protect the operating personnel from very-high-frequency radiation the end of a waveguide (4 in Fig 1) and the cathode connections of the magnetron were screened. The gas to be analysed was in a quartz discharge tube (6) placed in the waveguide (4) at an e.m. wave antinode. The apparatus was used to excite argon-helium mixtures at pressures from 0.3 to 20 torr. It was found that the emission intensities were higher than those produced by means of 6 Mc/s sources. A table on p 261 gives the intensities (I_{λ}) of certain lines in the spectra of pure helium, pure argon and 50% + 50% He-A mixture, excited using the magnetron circuit of 3000 Mc/s frequency.

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These intensities are given in the form of ratios I_M/I_B where I_B is the intensity produced by excitation using a VG-generator of 6 Mc/s frequency. The spectra were excited at the optimum gas pressure in the discharge tube which was 6 torr for pure helium, 0.5 torr for pure argon and 0.5 torr for 50% + 50% helium-argon mixture. Temperature of the walls of the quartz discharge tube was 300-400°C when the VG-2 generator was used at 6 Mc/s compared to 40-50°C when the magnetron ($f = 3000$ Mc/s) was employed. When the 5875 Å helium line was excited at 3000 Mc/s its intensity was considerable at helium concentrations of the order of 10%, while 50% of helium was required to produce this line by means of the 6 Mc/s generator. Fig 2 shows the dependence of the logarithm of the intensity of 5875 Å helium line and 5888 Å argon line on the concentration of helium in a helium-argon mixture at various frequencies of excitation. There are 2 figures, 1 table and 6 English references.

SUBMITTED: August 10, 1958

Card 2/2

5(2), 5(4)

AUTHORS: . Zakharov, Ye. I., Lipis, L. V.,
Petrov, K. I.

307/75-14-1-28/32

TITLE: The Spectrographic Determination of Impurities of Bismuth, Cadmium, Tin, Lead, and Antimony in Tantalum (Spektral'noye opredeleniye primesey vismuta, kadmiya, olova, svintsa i sur'my v tantale)

PERIODICAL: Zhurnal analiticheskoy khimii, 1959, Vol 14, Nr 1, pp 135-136 (USSR)

ABSTRACT: Tantalum of a high degree of purity must not contain more than $1 \cdot 10^{-4}\%$ of each of the following impurities: Bismuth, cadmium, tin, lead, antimony. For the quantitative determination of these impurities a method having a sensitivity of $3 \cdot 10^{-2}\%$ is therefore necessary. In order to avoid the difficulties arising in the spectral analysis of metallic tantalum, the latter is best converted into the oxide, whereby also the impurities go over into the corresponding oxides. Tantalum pentoxide, contrary to the oxides of the 5 impurities to be determined, is relatively difficultly volatile. By employing the vaporization method (Refs 1,2) the necessary sensitivity of impurity determination in tantalum can thus be attained,

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Bismuth, Cadmium, Tin, Lead, and Antimony in Tantalum

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which sensitivity is higher than that attained when using a direct current arc (Ref 3). Oxidation of tantalum was carried out by heating for 1.5 to 2 hours in a muffle furnace at 600 - 700°. Investigations showed that the optimum temperature for the evaporation of the admixed oxides is 1400°. At this temperature the impurities evaporate completely, whereas the main quantity (Ta_2O_5) practically does not evaporate at all.

Investigations concerning optimum temperature were carried out in the range of between 900 and 1600°. Copper is suited as material for the electrodes on which the evaporated impurities are again condensed. Also spectrochemically pure carbon may be used, but in this case determination is not so accurate. Vaporization of impurities from Ta_2O_5 was brought about in carbon crucibles. In order to obtain reproducible results the method of internal standards was employed. Thallium may be recommended as internal standard. The pairs of lines used for the spectrometric determination of impurities in tantalum pentoxide are given by a table. For the excitation of the spectra of impurities precipitated on the electrodes a con-

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concentrated spark discharge of a generator IG-2 was used. .
Plotting of the lines was carried out by means of a spectro-
graph ISP-22. The sensitivity of this method in the case of
bismuth and cadmium is $1 \cdot 10^{-5}\%$, in that of lead and tin $3 \cdot 10^{-5}\%$,
and in that of antimony it amounts to $1 \cdot 10^{-4}\%$. The reproduci-
bility of the method, characterized by the mean square
deviation, is 8% for Bi, 10% for Pb and Sb, and 11% for Cd and
Sn. There are 3 tables and 3 Soviet references.

SUBMITTED:

September 18, 1957

Card 3/3

5(2),5(4)

AUTHORS: Zaydel', A. N., Lipis, L. V., Petrov, K. I. SOV/75-14-4-24/30

TITLE: Spectrum Analysis by the Method of Evaporation.
Communication 8. Analysis of Zirconium

PERIODICAL: Zhurnal analiticheskoy khimii, 1959, Vol 14, Nr 4, pp 497-500
(USSR)

ABSTRACT: The evaporation method for determining the admixtures in ZrO_2 can be applied because the vapor tension of zirconium dioxide vapors is negligible even at relatively high temperatures (Refs 11, 12). Other compounds of zirconium and even metallic zirconium can be easily transferred into dioxide by glowing in the air at 700-800°. This possibility makes gauging very easy as synthetic standards of ZrO_2 are simple to prepare. The success of the evaporation method depends on the right choice of temperature which has to ensure a complete and reproducible separation of the admixtures to be determined from the main component. The optimum temperature of heating zirconium dioxide in air and under decreased pressure is 2000-2100°. The B, Bi, Cd, Cr, Fe, K, Na, Li, Ni, Mn, Pb, Sb, Sn and Si admixtures which have to be

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determined sublimate almost completely at these temperatures, Al and Mg sublimate to a large percentage. At temperatures $> 2100^{\circ}$ the evaporation of zirconium dioxide sets in. The degree of evaporation of several admixtures was tested with radioactive isotopes (Ref 9). The conditions for the spectrum analysis of the condensate were the same as in earlier studies. Table 1 gives the blackening of the analytic lines of the admixtures after evaporation in air and in vacuum for the following elements: Al, B, Fe, Mg, Li, Pb. The zirconium dioxide sample contained $1.10^{-4}\%$ of B and Li and $1.10^{-2}\%$ of Al, Fe, Mg and Pb each. The pairs of lines used for the analytic determination are listed in table 2. The condensate forms regular and solid layers in the sublimation of the admixtures in vacuum. Therefore the substance enters the zone of discharge with more effect as when the sublimation is carried out under atmospheric pressure. The condensation coefficients of the additions are higher in vacuum (with the exception of Bi, Cd, and Pb). In order to keep the evaporation conditions and the excitation of spectra constant and to eliminate "third" components, the method of the inner

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Communication 8. Analysis of Zirconium

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standard was applied. Cobalt and gallium were used as inner standards. By this a high reproducibility of the determination is achieved: for manganese and chromium 8%, for boron 9%, for iron, nickel, magnesium, silicon, bismuth, antimony, tin, and lead 10%, for cadmium 11% and for aluminum, potassium, sodium, and lithium 20%. The reliability of the method was tested by comparing the obtained results with results obtained in chemical determinations (Table 3). The sensitivity of the determination of the admixtures in ZrO_2 is the same as it is in the analysis of ThO_2 and BeO_2 (Ref 7). It exceeds the sensitivity of the method of fractionated evaporation with a carrier (Ref 3) and the method of the direct "burning" of zirconium in different light sources (Refs 1, 2). The investigations described in this paper were conducted in 1952 - 1953. There are 2 figures, 3 tables, and 13 references, 7 of which are Soviet.

SUBMITTED: April 7, 1958

Card 3/3

LIPIS, B.Z.; MAMAKOV, A.A.; YEPIFANOV, P.V.

Deaeration of grape juice. Kons. 1 ov. prom. 16 no.10:20-23
0 '61. (MIRA 14:11)

1. Moldavskiy nauchno-issledovatel'skiy institut pishchevoy
promyshlennosti.

(Grape juice)

5(2)

SOV/32-25-5-55/56

AUTHOR:

Lipis, L. V., Doctor of Technical Sciences

TITLE:

Review of the Book ^{by} O. B. Fal'kova and L. S. Lomonosova
"Spectrum Analysis" Metallurgizdat, Moscow, Price: 10 Rubles
35 Copecks, 7000 Copies, 420 Pages, 1958 (Retsenziya na knigu:
O. B. Fal'kova i L. S. Lomonosova "Spektral'nyy analiz" Metal-
lurgizdat, Moskva, tsena 10 r. 35 k., tirazh 7000, 420 str.,
1958 g.)

PERIODICAL:

Zavodskaya Laboratoriya, 1959, Vol 25, Nr 5, p 639 (USSR)

ABSTRACT:

The book mentioned in the title is destined for technicians and laboratory assistants and may be considered a successful attempt of writing a book (the first in the USSR) on spectrum analysis. The introduction and the first chapter are devoted to the principle of spectrum analysis and the nature of atomic spectra. The second chapter includes descriptions of devices used in spectrum analysis, the third chapter describes radiation sources, and the fourth chapter is devoted to sample introduction. The fifth and sixth chapters describe quantitative and qualitative analyses, and the seventh chapter describes sample taking and the preparation of standard samples. Several special methods of analysis are discussed in chapter

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SOV/32-25-5-55/56
Review of the Book^{by} O. B. Fal'kova and L. S. Lomonosova "Spectrum Analysis"
Metallurgizdat, Moscow, Price: 10 Rubles 35 Copecks, 7000 Copies, 420 Pages,
1958

eight. It is pointed out that some chapters might be improved;
the work as a whole, however, is satisfactory.

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24 (7)

AUTHOR: Lipis, L. V.

SOV/53-68-1-6/17

TITLE: Spectral Analysis of Pure Substances (Spektral'nyy analiz chistykh materialov)

PERIODICAL: Uspekhi fizicheskikh nauk, 1959, Vol 68, Nr 1, pp 71-80 (USSR)

ABSTRACT: This article gives an account of a lecture held by the author on the occasion of the 12th Congress on Spectroscopy (November 1958) in Moscow. In the course of this lecture he gave a survey of spectrum-analytical methods and the possibilities of detecting traces of least concentration. The progress made in the field of atomic-, rocket-, and semiconductor engineering attached particular importance to the degree of purity of the substances used. Also the term of "purity" has changed its meaning since traces of up to 10^{-9} % could be detected and the importance of impurities was recognized. This holds particularly for semiconductor engineering. For example, one single impurity atom among $10^8 - 10^9$ germanium atoms may considerably affect the conductivity of one germanium crystal (this corresponds to a weight ratio of 10^{-13} : 1). In addition, boron in uranium may exert considerable

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influence upon the physical properties of the latter as soon as a concentration of 10^{-5} % has been attained. The author then discusses further examples. Table 1 lists the results of a determination of impurities in polycrystalline silicon (Yakovlev, Geneva Conference 1958). Other scientists determined 12 impurity elements in silicon by the analysis of neutron activation with an accuracy of 10^{-5} - 10^{-9} %. Afterwards, the accuracy of spectral- and activation analyses is compared and discussed. The author indicates that the sensitivity of spectrum-analytical methods has been increased and could be further improved by the design and construction of spectral apparatus of high angular dispersion at high intensity of light, by improving the quality of the photographic material as well as by the development of new methods. Special importance is attached to the last-mentioned problem. Methods are then discussed which have been devised (primarily by Western authors) and employed recently. A. G. Karabash and Sh. I. Peyzulayev contributed to the development of a combined chemical and physical method (concentration by precipitation). Further methods based on previous concentration are then

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discussed, among them that developed by A. K. Rusanov and S. A. Borovik (concentration by fractional distillation). Soviet scientists contributed also to the development of an evaporation method (S. L. Mandel'shtam, A. N. Zaydel' et al). Table 2 shows an analysis of 26 elements on the basis of this method (data on the accuracy of the method) compared with the values of the accuracy (in $m\gamma$) of a method operating on the principle of fractional distillation and "carriers". The former offers much better results for some elements such as Au (15 $m\gamma$), Cr (100 $m\gamma$), Li (1 $m\gamma$), Bi (2 $m\gamma$), and Si (50 $m\gamma$). In conclusion, further methods of concentrating impurities are discussed, among them especially the carrier method. Table 3 gives a comparison between the values of accuracy of many elements and the method of evaporation. There are 1 figure, 3 tables, and 26 references, 17 of which are Soviet.

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L.R.L.S., L.V.

24(4), 24(7)
AUTHORS:

BOGDANOV, I. P., BOCHKOVA, O. P., ZAYDOL, A. P.,
ZABAROVA, V. E., LAGUN, Yu. E., KALITAYEVICH, E. I., FOMIN,
M. P., CHAYEN, M. P., SHUKHIN, A. M., LYSYS, L. I.
Sergey Eduardovich Frish (Sergey Eduardovich Frish).
On the Occasion of His Sixtieth Birthday
(K obshcheyatsel'stviyu so dnyami rojdeniya).

TITLE:

PERIODICAL:

Voprosy fizicheskikh nauk, 1959, Vol. 69, No. 1, pp 165-167 (USSR)

ABSTRACT:

On June 19th, 1959, the well-known Soviet physicist E. E. Frish, who made a name for himself especially in the field of spectroscopic optics, attained the age of sixty. He began his scientific work as a student at the Physico-mathematical department of Leningrad University (Physico-mathematical department of Leningrad University) under D. K. Rozhnitskiy. After completing his university studies he continued his work at the Geophysics Institute (Geophysics Institute) at the USSR Academy of Sciences (USSR Academy of Sciences). Since 1934 he held a chair for optics and supervised work at the Physics Department. First as dean and later as director of the Kurchatov Institute, early Frishskiy Institut LGU (Scientific Research Institute for Physics at Leningrad State University).

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In 1946 he was appointed Corresponding Member, AS USSR, and took active part in the work of the Academy. He is deputy chairman of the spectroscopy Committee, chief editor of the periodical "Optika i spektroskopiya" and member of the International Committee for Spectroscopy at the UNESCO. He first concentrated his scientific interest on atomic energy; the structure of atomic spectra, the Zeeman effect in the sodium and potassium spectra, the Zeeman experimental spectroanalytical investigations, as well as upon investigation of the properties of the atomic nucleus. (The investigation of the interaction between nucleus and electron shell led to the discovery of the hyperfine structure of spectra). He investigated the hyperfine structure of He and set up a rule concerning the interrelation between molecule-symmetry. He further investigated the fine structure of isotope mixtures, the excitation mechanism of the higher atomic levels, and questions of the interaction of elementary

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particles. Finally, mention is made of his pedagogical activities, especially his courses in physics (which are partly held together with A. V. Fikareva). There are 1 figure and 42 Soviet references.

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S/078/60/005/010/006/021
B004/B067

AUTHORS: Lipis, L. V., Pozharskiy, B. G., Pozharskaya, M. Ye.,
Fomin, V. V.

TITLE: Complex Sulfates of Tetravalent Plutonium With Alkali Metals

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol. 5, No. 10,
pp. 2190-2203

TEXT: The authors produced complex plutonium alkali metal sulfates by dissolving plutonium sulfate in 1 N H₂SO₄, saturating the solution with alkali sulfate, centrifuging after 24 hours, removing the excess alkali sulfate by washing with 1 N H₂SO₄, and removing the excess H₂SO₄ by washing with alcohol and, finally, with ether. The complex salts of Pu(IV) with Na, K, Rb, Cs, and NH₄ were produced. Tables 1-5 give the analyses of these compounds. On the basis of the analyses, the following formulas are obtained: $\text{Na}_6\text{Pu}(\text{SO}_4)_5 \cdot \text{H}_2\text{O}$; $(\text{NH}_4)_6\text{Pu}(\text{SO}_4)_5 \cdot 2-4\text{H}_2\text{O}$, $\text{K}_4\text{Pu}(\text{SO}_4)_4 \cdot 2\text{H}_2\text{O}$, $\text{Rb}_4\text{Pu}(\text{SO}_4)_4$, and $\text{CsPu}(\text{SO}_4)_4$. The production of a pure

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complex salt with lithium failed since it could not be separated from LiSO_4 . The complex salts are readily soluble in water and mineral acids. Table 6 gives the pH values at which the precipitation of basic sulfate sets in. The solubility of potassium-plutonium sulfate in nitric acid (Table 7), in sulfuric acid (Table 8), and in 3, 5, and 10% solutions of K_2SO_4 in 1 N H_2SO_4 (Table 9) was radiometrically determined at 25°C.

Hydrolysis occurred on dissolution in water. Figs. 1-7 show the micro-
photographs of the absorption spectra of the complex salts and of $\text{Pu}(\text{SO}_4)_2$ recorded by an ИСП-51 (ISP-51) spectrograph at -195.8°C and by an МоЛл К-15 (Moll K-15) microphotometer. The spectra differ from one another as well as from the spectrum of plutonium sulfate. The spectra of the pentasulfate complexes of Na and NH_4 , as well as of the tetrasulfate complexes of K, Rb, and Cs show certain similarities. On the basis of the spectrum, a content of at least six sulfate groups is assumed for the impurely prepared lithium complex salt. The spectrum and color of the complex salts of rubidium and cesium changed when stored in air, whereas no change was observed in hermetically sealed samples. There are 7 figures, 9 tables, and 4 references: 3 Soviet and 1 US.

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With Alkali Metals

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B004/B067

SUBMITTED: July 6, 1958.

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INDICHENKO, Lyubov' Nikolayevna; LIPIS, L.V., otv. red.; MERGOSOV, G.G.,
red. ~~1st~~-va; BRUZGUL', V.V., tekhn. red.

[Spectrum analysis of minerals] Spektral'nyi analiz mineral'nykh
veshchestv. Moskva, Izd-vo Akad. nauk SSSR, 1960. 188 p.
— Supplement 64 plates. (MIRA 14:10)
(Minerals—Spectra)

PHASE I BOOK EXPLOITATION

SOV/5090

Zaydel', A. N., N. I. Kaliteyevskiy, L. V. Lipis, and M. P. Chayka

Emissionnyy spektral'nyy analiz atomnykh materialov (Emission Spectrum Analysis of Atomic Materials) Leningrad, Fizmatgiz, 1960. 686 p. 8,000 copies printed.

Ed. (Title page): A. N. Zaydel', Professor; Ed.: Ye. Ya. Shreyder; Tech. Ed.: A. A. Zabrodina.

PURPOSE: This book is intended for specialists in optics and spectral analysis.

COVERAGE: The book deals with the techniques of spectral analysis used in the determination of the purity of atomic materials. The work does not discuss determinations of components in alloys, including Nb-U and U-Al used in reactor construction, and in alkali metal alloys, nor does it describe the analysis of atomic raw materials (ores and primary products of their processing) since this type of materials can be treated by conventional

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Emission Spectrum Analysis (Cont.)

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spectral analysis methods. Ch. II, III, IX, XII, XIII, and XIV were written by A. N. Zaydel'; Ch. VI, X, and XI by N. I. Kaliteyevskiy; Ch. VII and VIII by L. V. Lipis; Ch. IV by M. P. Chayka; Ch. I by A. N. Zaydel' in cooperation with N. M. Kaliteyevskiy; and Ch. V. by M. P. Chayka and A. N. Zaydel'. The authors thank S. E. Frish, A. A. Petrov, S. M. Rayskiy, M. A. Yel'yashevich, A. A. Bashilov, V. V. Nalimov, and Ye. Ya. Shreyder. References accompany each of the three parts of the books.

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LIPIS, L.V.; POZHARSKIY, B.G.; FOMIN, V.V.

Spectrophotometric study of the processes involving complex
formation by tetravalent plutonium in nitric acid solutions.
Zhur. struk. khim. 1 no.2:135-144 J1-Ag '60. (MIRA 13:9)
(Plutonium compounds--Spectra)

LIPIS, L.V.; POZHARSKIY, B.G.; FOMIN, V.V.

Complex formation by tetravalent plutonium in sulfuric acid
solutions. Zhur. strukt. khim. 1 no.4:417-424 N-D '60.
(MIRA 14:2)

(Plutonium compounds)

LIPIS, L.V.; POZHARSKIY, B.G.

Absorption spectra of Pu(III) halides. Zhur. neorg. khim. 5 no.10:
2162-2166 O '60. (MIRA 13:10)
(Plutonium halides--Spectra)

24725

S/078/61/006/007/002/014

B107/B217

21,4100

AUTHORS: Alenchikova, I. F., Zaytseva, L. L., Lipis, L. V.,
Nikolayev, N. S., Fomin, V. V., Chebotarev, N. T.

TITLE: Properties of plutonyl fluoride complexes

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 6, no. 7 1961, 1513-1519

TEXT: The object of the present study was the production and investigation of plutonyl fluoride complexes with alkali metals. The systems $\text{PuO}_2\text{F}_2 - \text{MeF} - \text{H}_2\text{O}$ with $\text{Me} = \text{Na}, \text{K}, \text{NH}_4, \text{Rb}, \text{Cs}$ were investigated in the range $\text{Me}/\text{Pu} = 1$ to 50 by means of electron absorption spectra. The latter were recorded by means of the WCD-51 (ISP-51) spectrograph at the boiling temperature of liquid nitrogen. The compounds prepared were analyzed; Table 1 provides a list of the compounds produced as well as the analytical values. The compounds $\text{MePuO}_2\text{F}_3 \cdot \text{H}_2\text{O}$ are isotopic and of cubic symmetry.

Fig.2 shows schematically the powder diagrams, obtained in the PKJ-86 (RKU-86) camera with chromium radiation, for the following compounds (lattice constant in brackets): $\text{KPuO}_2\text{F}_3 \cdot \text{H}_2\text{O}$ (8.126 Å), $\text{RbPuO}_2\text{F}_3 \cdot \text{H}_2\text{O}$

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24725

S/078/61/006/007/002/014
B107/B217

Properties of plutonyl

(8.458 Å), $\text{CsPuO}_2\text{F}_3 \cdot \text{H}_2\text{O}$ (8.916 Å). Furthermore, a series of isotopic compounds $\text{Me}_2\text{PuO}_2\text{F}_4$ exists; Fig. 3 shows the powder diagrams for $\text{K}_2\text{PuO}_2\text{F}_4$ and $(\text{NH}_4)_2\text{PuO}_2\text{F}_4$ in schematic form. The compound $\text{Cs}(\text{PuO}_2)_2\text{F}_5 \cdot 3\text{H}_2\text{O}$ was also found; the radiogram is very rich in lines (Fig. 9) and indicates a low symmetry. The absorption spectra are characterized by the bands for Pu^{VI} between 8280 and 8330 Å, as well as between 6200 and 5600 Å. The stability of the compound $\text{MePuO}_2\text{F}_3 \cdot \text{H}_2\text{O}$ was found to decrease on the transition from sodium to cesium. There are 11 figures, 4 tables, and 15 references: 2 Soviet-bloc and 13 non-Soviet-bloc. The reference to English-language publication reads as follows: H. H. Anderson, Paper 6, 21 of the Transuranium Elements, 14B, New York, 1949.

SUBMITTED: May 30, 1960

Card 2/6

ALENCHIKOVA, I.F.; LIPIS, L.V.; NIKOLAYEV, N.S.

Investigation of the system $\text{PuO}_2\text{F}_2\text{--HF--H}_2\text{O}$ (isotherm 20°C). Atom.
energ. 10 no.6:592-596 Je '61. (MIRA 14:6)
(Plutonium compounds)

S/078/62/007/007/002/013
B179/B101

AUTHORS: Zaytseva, L. L., Lipis, L. V., Fomin, V. V., Chebotarev, N. T.

TITLE: Production and properties of some uranyl fluoride complexes

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 7, 1962, 1538-1547

TEXT: The precipitates formed in the reaction between 6.08 M CsF solution and 0.63 M UO_2F_2 solution were investigated in the range of concentration (C) $c_{\text{Cs}^+} : c_{\text{UO}_2}^{2+} = 0.5 - 20$ by means of absorption

spectroscopy, X-ray analysis, and chemical analysis. Three Cs- UO_2 -fluoride complexes were formed: CsUO_2F_3 at $C = 0.5 - 1.5$; $\text{Cs}_2\text{UO}_2\text{F}_4 \cdot \text{H}_2\text{O}$ at $C = 2-3$; $\text{Cs}_3\text{UO}_2\text{F}_5$ at $C = 6 - 20$ and a mixture of $\text{Cs}_2\text{UO}_2\text{F}_4 \cdot \text{H}_2\text{O}$ with $\text{Cs}_3\text{UO}_2\text{F}_5$ at $C = 3 - 5$. CsUO_2F_3 is a finely crystalline, yellow substance soluble in diluted HNO_3 , poorly soluble in H_2O ; it hydrolyzes in aqueous solution. Both $\text{Cs}_2\text{UO}_2\text{F}_4 \cdot \text{H}_2\text{O}$ and $\text{Cs}_3\text{UO}_2\text{F}_5$ form green crystals, are soluble in H_2O
Card 1/2

Production and properties of some...

3/076/62/007/007/002/013
B179/B101

and undergo hydrolysis. All three compounds are insoluble in alcohol, ether, and acetone. The solubility of cesium uranyl fluoride complexes in H_2O increases in the order $CsUO_2F_3$, $CsUO_2F_3 \cdot H_2O$, $Cs_2UO_2F_4 \cdot H_2O$, $Cs_3UO_2F_5$. $Cs_2UO_2F_4 \cdot H_2O$ forms in vacuum evaporation of 0.63 M UO_2F_2 and 6.08 M CsF solutions at the molecular ratio of 1:2. $CsUO_2F_3 \cdot H_2O$ forms in slow evaporation of these solutions in the air. $Cs_2UO_2F_4 \cdot H_2O$ forms in slow evaporation of saturated UO_2F_2 and CsF solutions at the molecular ratio of 1:2 in the air. At the molecular ratio of 1:1, $CsUO_2F_3$ readily precipitates only from concentrated UO_2F_2 and CsF solutions; diluted solutions give a mixture of $CsUO_2F_3$ and $CsUO_2F_3 \cdot H_2O$. The interplanar spacings of the crystals $CsUO_2F_3$, $CsUO_2F_3 \cdot H_2O$, $Cs_2UO_2F_4 \cdot H_2O$, and $Cs_3UO_2F_5$ were calculated and the wavelengths of the principal absorption bands were measured; these range between 4200 and 6000 Å. There are 8 figures and 8 tables.

SUBMITTED: December 24, 1960

Card 2/2

FRISH, S.E., otv. red.; BOBOVICH, Ya.S., kand. fiz.-matem. nauk, red.;
VOL'KENSHTEYN, M.V., doktor fiz.-matem. nauk, red.; GALANIN,
M.D., doktor fiz.-matem. nauk, red.; DRUKAREV, G.F., doktor
fiz.-matem. nauk, red.; YEL'YASHEVICH, M.A., akademik, red.;
KALITEYEVSKIY, N.I., doktor fiz.-matem. nauk, red.; KUSAKOV,
M.M., doktor khim. nauk, red.; LIPIS, L.V., doktor tekhn.nauk,
red.; PEKAR, S.I., doktor fiz.-matem. nauk, red.; PROKOF'YEV,
V.K., doktor fiz.-matem. nauk, red.; SOKOLOV, N.D., doktor
fiz.-matem. nauk, red.; FEOFILOV, P.P., doktor fiz.-matem.
nauk, red.; CHULANOVSKIY, V.M., doktor fiz.-matem. nauk, red.;
SHPOL'SKIY, E.V., doktor fiz.-matem. nauk, red.; YAROSLAVSKIY,
N.G., kand. fiz.-matem. nauk, red.; LEKSINA, I.Ye., red. izd-
va; PENKINA, N.V., red. izd-va; NOVICHKOVA, N.D., tekhn. red.;
KASHINA, P.S., tekhn. red.

[Physical problems in spectroscopy] Fizicheskie problemy spektro-
skopii; materialy. Moskva, Izd-vo Akad. nauk SSSR. Vol.1. 1962.
474 p. (MIRA 16:2)

1. Soveshchaniye po spektroskopii. 13th, Leningrad, 1960. 2. Chlen-
korrespondent Akademii nauk SSSR (for Frish). 3. Akademiya nauk
Belurusskoy SSR (for Yel'yashevich).
(Spectrum analysis)

ZAYTSEVA, L.I.; IL'YASHOVA, V.I.; KURKOVA, T.I.; KURKOVA, T.I.
MIRN, I.V.; ORSOVICH, N.V.

Physicochemical properties of the crystal hydrates of
rare-earth sulfates of the terbium subgroup. *Zhur.georg.khim.*
10 no.8:1761-1770 Ag '61.

(MIRA 1961)

1. Submitted May 6, 1961.

BLAGOVESHCHESKIY, S.N., doktor tekhn.nauk; LIPIS, V.B.

Draft standard for the stability of dredgers. Inform. sbor. TSNIIMF
no.59. Tekh. ekspl.mor.flota no.7:3-21 '61. (MIRA 16:6)
(Stability of ships--Standards)
(Dredging machinery--Standards)

LIPIS, V.B.

Designing an controllable pitch propeller allowing for a decrease in hydrodynamic moment with respect to the turning pivot of the blade. Trudy TSNIMF 7 no.35:89-106 '61.

(MIRA 14:12)

(Propellers)

LIPIS, V.B.; VILENSKIY, G.V.

Investigating the propulsive and manoeuvring qualities of the "Volgoles"
lumber carrier. Inform. sbor. TSNIIMF no.75 Tekh. ekspl. mor. flota
no.14:34-48 '62. (MIRA 16:3)
(Ship trials) (Ship propulsion)

LIPIS, V.B.

Theory of the action of the propeller of a rolling ship.
Trudy TSNIIMF no.66:21-37 '65. (MIRA 18:12)

L 45605-66 EWT(1)/EWP(m) WW

ACC NR: AT6014316

(N)

SOURCE CODE: UR/2752/63/000/049/0115/0129

AUTHOR: Lipis, V. B.

ORG: None

TITLE: Determining the inertial forces and moments acting on a screw propeller during nonuniform motion in a nonstationary flow

SOURCE: Leningrad. Tsentral'nyy nauchno-issledovatel'skiy institut morskogo flota.
Trudy, no. 49, 1963. Gidromekhanika sudna (Hydromechanics of ships), 115-129

TOPIC TAGS: propeller blade, nonsteady flow, motion mechanics, marine engineering, hydrodynamics

ABSTRACT: The author determines the time-variable hydrodynamic forces and moments of potential nature acting on a screw propeller during motion in a nonstationary flow. Formulas are derived for calculating the coefficients of the apparent masses of blade and screw. The results show that the additional hydrodynamic forces and moments generated by nonstationary flow around the propeller may be partially accounted for by calculating inertial forces. The approximate formulas derived in this paper for the coefficients of apparent masses agree satisfactorily with available experimental data. A rough estimate of the inertial forces acting on the screw during rolling of the ship indicates that only a part of the additional periodic forces which determine

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ACC NR: AT6014316

the dynamic load on the propeller and shaft may be calculated if stationary flow is assumed. Calculations show that the amplitude of the moment acting on the screw in the vertical plane during rolling of the ship is about 47% of the nominal torque for the propeller in quiet water. Although these results require experimental verification, it is obvious that the additional hydrodynamic forces and moments of a potential nature which act on the screw propeller should be taken into account when determining the specific dynamic load on the shaft bearings. Orig. art. has: 7 figures, 32 formulas.

SUB CODE: 13/ SUBM DATE: None/ ORIG REF: 010/ OTH REF: 002

Card 2/2 *plw*

L 05056-07 ENR(K)/ENR(M)/1-2/ENR(V) ENR(C) ENR(JET(CZ)

ACC NR: AT6025575

(N)

SOURCE CODE: UR/2755/66/000/072/0071/0097

AUTHOR: Lipis, V. B. (Candidate of technical sciences)

ORG: None

TITLE: Vortex theory as the basis for calculating the action of a propeller with respect to the rolling of a ship

SOURCE: Leningrad. Tsentral'nyy nauchno-issledovatel'skiy institut morskogo flota. Trudy, no. 72, 1966. Gidromekhanika sudna (Hydromechanics of ships), 71-97

TOPIC TAGS: vortex, propeller blade, hydrodynamics, marine engineering, fluid flow

ABSTRACT: This is a continuation of a work by the author in which vortex theory formulas were derived for a lightly loaded screw. In this article, the author proposes a practical method for calculating secondary forces and moments which act on the propeller as a result of periodic oncoming downwash during ship rolling. The proposed method for verifying propeller calculations according to vortex theory takes into consideration the effect of propeller vibration during rolling of a ship. Secondary hydrodynamic forces and moments averaged with respect to propeller rpm are calculated where they are transmitted from the propeller to the propeller shaft. The relative magnitude of additional forces and moments increases with increased forward speed, Strouhal number and propeller screw pitch. The theoretical and experimental data are

Card 1/2

UDC: 629.12:532.582.5.037:532.5.041

L 05656-67

ACC NR: AT6025575

in full agreement with respect to conditions for continuous flow around the propeller blades. These data are valid only for the case where the propeller is submerged in deep water. If a similar method is to be developed for surface craft, an independent hydrodynamic problem must be studied concerned with the operation of the propeller under conditions of periodic loading variation, aeration and blade exposure.. Orig. art. has: 13 figures, 5 tables, 59 formulas.

SUB CODE: 1320/SUBM DATE: None/ ORIG REF: 012

Card 2/2

BIBERGAL', A.V.; RYKNER, T.G.; NIKULIN, Yu.P.; LIPIS, V.I.

Some problems in studying radiation parameters in powerful gamma apparatus used in radiation therapy: as exemplified by tests of the Vol'fram apparatus. Radiobiologiya 5 no.1:140-146 '65. (MIPA 18:3)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.

L 4210-66 EWT(m)

ACCESSION NR: AP5014071

UR/0241/65/000/005/0078/0081
615.849.7-015.35

AUTHOR: Bibergal', A. V. (Moscow); Ratner, T. G. (Moscow); Lipis, V. L. (Moscow) ^{24B}

TITLE: Dose distribution in rotation-convergent irradiation

SOURCE: Meditsinskaya radiologiya,¹⁰ no. 5, 1965, 78-81

TOPIC TAGS: irradiation dosimetry, irradiation apparatus, gamma radiation, radio-therapy ¹⁹

ABSTRACT: The authors compared the dose distribution produced by a rotation-convergent gamma apparatus ("Vol'fram") newly developed in the USSR with that produced by other types of apparatus. Single-field irradiation makes it possible to avoid vital organs, but it does not ensure an efficient dose distribution. Tilting at a slight angle ($\pm 30-45^\circ$) improves the dose distribution slightly, but tilting at a big angle ($\pm 90^\circ$ or more) makes it very difficult to avoid irradiating vital organs. A rotation-convergent field of $\pm 30^\circ$ along both axes ensures a more efficient dose distribution than in the above cases. The maximum dose reaches a greater depth and the decrease in dose toward the surface is steeper. Moreover, the possibility

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ACCESSION NR: AP5014071

of preventing the irradiation of vital organs is virtually the same as for a static field. Distribution of the dose by the rotation-convergent method varies with the depth of the center of rotation and convergence. This distribution can be used to treat surface and shallow tumors. Orig. art. has: 6 figures.

ASSOCIATION: none

SUBMITTED: 27Aug64

ENCL: 00

SUB CODE: LS

NO REF SOV: 002

OTHER: 003

Card 2/2 DP

"APPROVED FOR RELEASE: 07/12/2001

CIA-RDP86-00513R000930020014-2

APPROVED FOR RELEASE: 07/12/2001

CIA-RDP86-00513R000930020014-2"

POLYAKOV, N.S.; LIPITSKIY, G.T., inzh.; KOSHELENKO, P.I., inzh.

New type of flexible rollers for large-capacity belt conveyors.
Vop. rud. transp. no.5:42-46 '61. (MIRA 16:7)

1. Dnepropetrovskiy gornyy institut (for Polyakov, Lipitskiy).
2. Semenovsko-Golovkovskiy ugol'nyy razrez (for Koshelenko).
3. Chlen-korrespondent AN UkrSSR (for Polyakov).
(Conveying machinery)

SHTOKMAN, I.G., doktor tekhn. nauk; LIPITSKIY, G.T., inzh.; UGOL'NIKOV, V.F.,
inzh.

Rolling hinges on traction chains of multibucket excavators.
Izv. vys. ucheb. zav.; gor. zhur. no.12:79-86 '58.
(MIRA 12:8)

1.Dnepropetrovskiy gornyy institut.
(Excavating machinery)

VOROB'YEV, V.F., general-leutenant, dotsent, kand.voyennykh nauk; LI-
PITSKIY, S.V., polkovnik, kand.istor.nauk; KUZ'MIN, N.F., pol-
kovnik, kand.istor.nauk; MURIYEV, D.Z., polkovnik, kand.voyennykh
nauk; KONOVALOV, P.P., general-mayor, kand.voyennykh nauk; GNEDOY,
I.L., polkovnik, kand. voyennykh nauk; ARUTYUNOV, A.S., polkovnik;
VNOTCHENKO, L.N., polkovnik, kand.voyennykh nauk; SHEKHOVTSOV,
N.I., polkovnik, kand.voyennykh nauk; MINYAYLO, S.N., kand.voyen.nauk,
polkovnik; YELISEYENKO, D.Kh., podpolkovnik, red.; ZUBAKOV, V.Ye.,
polkovnik, red.; SOKOLOVA, G.F., tekhn.red.

[Battle history of the Soviet Armed Forces] Boevoi put' Sovetskikh
Vooruzhennykh Sil. Moskva, Voen.izd-vo M-va obor.SSSR, 1960. 570 p.
[Atlas of battle maps] Al'bom skhem. (MIRA 13:4)

1. Moscow. Voyennaya akademiya imeni M.V.Frunze. 2. Kafedra istorii
voyennogo iskusstva Voennoy akademii imeni M.V.Frunze (for all,
except Zubakov, Sokolova).
(Russia--Army)

TKACHENKO, D.F.; LIPIYENKO, I.S. (Sumskaya oblast')

Experience in preventive and therapeutic services rendered to women
workers on collective farms. Med.sestra no.6:19-21 Jo '55.
(OUTPATIENT SERVICES, (MLRA 8:7)
for women workers in collective farms in Russia)

LIPIYENKO, I.S. (selo Bol'shaya Pisarevka Sumskoy oblasti)

~~LIPIYENKO, I.S.~~
The rural fel'dsher's role in treating acute surgical diseases of
the visceral organs. Fel'd. 1 akush.no.1:31-36 Ja '56 (MLRA 9:4)

(MEDICINE, RURAL) (ABDOMEN--DISEASES)

~~LIPKA BARBARA~~

POLAND/Physical Chemistry - Electrochemistry

B-12

Abs Jour : Referat Zhur - Khimiya, No 2, 1957, 3942

Author : Tomassi Witold, Lipka Barbara, Juszcuk Kazimierz

Inst : Warsaw Polytechnic

Title : Investigation of a Circuit of Two Electrodes of the Second Kind

Orig Pub : Zesz. nauk. Politechn. Warszawskiej, 1954, No 9, Chemia, No 1, 5-10

Abstract : Study of e.m.f. of the circuit $\text{Ag}, \text{AgCl}(\text{solid}) / \text{solution KCl } (c_1) // 1.8 \text{ N KNO}_3 + 1.8 \text{ N KCl} / \text{solution KCl } (c_2) / \text{PbCl}_2(\text{solid}), \text{Pb}$ at values of c_1 and c_2 from 0.01 to 0.2 N, at 25° and 35°.

Card 1/1

- 186 -

3910

542.973 : 545.37 : 541.127.1

Lipka B. Investigation of Ni-Raney Catalysts by Kinetic and Potentiometric Methods. CH

„Badania kontaktów Ni-Raneya metodą kinetyczną oraz potencjometryczną”. Przemysł Chemiczny. No. 1, 1955, pp 55—56, 9 figs., 2 tabs.

An investigation of the effect of preparation methods and leaching temperature of Ni-Al (50 : 50) alloys on the activity of the Ni-Raney catalyst. It was established that 1) the preparation methods of the alloy considerably affect the activity of the catalyst, 2) in the hydrogenation of maleic acid to succinic acid, the greatest activity is shown by a catalyst leached at a temperature of 50°C, 3) kinetic and potentiometric methods of testing catalysts produce concordant results, 4) the most efficient catalyst shows the greatest electromotive force.

COUNTRY : USSR
 CATEGORY : Physical Chemistry. Kinetics. Combustion.
 Explosions. Topochemistry. Catalysis
 LIPKA, B.
 RES. JOUR. : RZhKhim., No 17, 1959, No. 62095
 AUTHOR : Treshchenov, E. I., Jurewicz, E.
 INSTITUTE : -
 TITLE : The Investigation of Zinc-Iron Contacts in the
 Dehydration Reaction of Cyclohexanol. Porrelo-
 ORIG. PUB. : Chem. stsov., 1959, No 3, 315-328

ABSTRACT : Investigated are activities of a number of
 Zn - Fe contacts (having different compositions) with regard to dehydration of cyclohexanol
 to cyclohexanone. The activity of contacts depends on their composition and on the method of
 preparation. Two contacts, having an identical
 composition (11.5 and 12.2% Fe), but characterized by differences in structure, resulting
 from different catalytic properties. One of
 *tion Between the Catalytic Properties of Contacts and Their Potentiometric Characteristics.

Card: 1/2

B-16

COUNTRY :
CATEGORY :

B

ABS. JOUR. : RZhKhim., No 17, 1959, No. 50095

AUTHOR :
INSTITUTE :
TITLE :

ORIG. PUB. :

ABSTRACT : the contacts, obtained in slow cooling of the
Con'd Zn - Fe melt, has a stable catalytic activity.
The electrode potential of a sample prepared
from powder derived from this contact, has a
very specific value(-700 mv). Other contacts,
characterized by large absolute values of the
electrode potential, although are higher in
catalyst activities, the latter is unstable.
The authors point to the importance of poten-
tiometric investigation of catalysts.--V. Prolov.

Card: 2/2

Barbara Lipka

Distr: 4E2c(j)/4E3d

7 Catalytic oxidation with air of a mixture of 3- and 4-
picoline in presence of ammonia. Barbara Lipka, Edward
Treszczanowicz, Irena Jaworska, and Antoni Jurawicz
(Inst. Chem. Org. Warsaw). *Przemysl Chem.* 37, 484-6
(1958) (English summary).—Oxidation of the mixt. of pico-
lines (I) with air in the presence of NH_3 over a supported on
 Al_2O_3 vanadium oxide catalyst gave nicotinic and isonicotinic
acid nitriles. 7 The oxidation was carried out in the gas
phase. The yield of nitriles at 330-360° was approx. 68%
of the I introduced into the reactor; however, calculated
on the I that has reacted 90% was oxidized to nitriles) and
only 6.6% underwent destructive oxidation. F. J. H.

8
2 May
2

On 2

LIPKA, B.

reports to be presented at the 2nd Int Congress on Catalysis, Paris, France, 4-9-Jul '60.

Poland

BARANOWSKI, B., SZALOWSKI, M., and SZYMCZAK-SZYMANSKA, E. - "Properties of nickel layers electrolytically hydrogenated in the presence of poisons" (Section II)
 BARANOWSKI, B., SZALOWSKI, M., and SZYMCZAK-SZYMANSKA, E. - "Properties of nickel layers electrolytically hydrogenated in the presence of poisons" (Section II)
 SZYMCZAK-SZYMANSKA, E. - "On the process of catalytic reaction of sulfur dioxide with acids in iron solution" (Section III)
 SZYMCZAK-SZYMANSKA, E. - "On trace catalysts" (Section II)
 SZYMCZAK-SZYMANSKA, E., and SZYMCZAK-SZYMANSKA, E. - "The gaseous phase transformation of a mixture of 3-picolone and 4-picolone in the presence of ammonia and air in a mixture of corresponding nitriles" (Section III)
 SZYMCZAK-SZYMANSKA, E., and SZYMCZAK-SZYMANSKA, E. - "Hydrogen transfer in gaseous phase between alcohols and compounds containing carbonyl groups" (Section I)
 SZYMCZAK-SZYMANSKA, E., and SZYMCZAK-SZYMANSKA, E. - "Studies on electric conductivity and catalytic activity of some metal oxides during isopropanol dehydrogenation" (Section III)
 SZYMCZAK-SZYMANSKA, E. - "Study of selectivity and activity of copper catalysts in dehydrogenation reaction" (Section III)
 SZYMCZAK-SZYMANSKA, E., and SZYMCZAK-SZYMANSKA, E. - "Influence of dimensions of pores on the catalytic power of active carbon in the oxidation of sulfur hydrogen by oxygen" (Section II)

LIINA, C.

Investigation of the principles governing industrial power
consumption. p. 5. PRAGUE. Ustav pro vyzkum a vyuziti paliv.
PRACE. Praha. No. 6, 1954.

SOURCE: East European Accessions List, (EEAL), Library of Congress
Vol. 5, no. 12, December 1956.

LIPKA, C.

Influence of mine electrification on power consumption. p. 116.
(Uhli, Vol. 7, no. 4, Apr. 1957, Praha, Czechoslovakia.)

SO: Monthly List of East European Accessions (EEAL) LC. Vol. 6, no. 12, Dec. 1957.
Uncl.

LIPKA, C.

Operational characteristics of ~~steam~~ turbine condensers.

P. 266, (Energetika) Vol. 7, no. 5, May 1957, Praha, Czechoslovakia

SO: Monthly Index of East European Accessions (EEAI) Vol. 6, No. 11 November 1957

LIPKA, C.

A study of the efforts of mine mechanization on the consumption of power.

P. 269. (UHLLI.) (Praha, Czechoslovakia) Vol. 7, No. 8, Aug. 1957

SO: Monthly Index of East European Accession (EEAI) LC. Vol. 7, No. 5, 1958

LIPKA, C.

The determination of the influence of cooling water on the output of a turbo-alternator.

P. 1. (ENERGETIKA) (Praha, Czechoslovakia) Vol. 8, no. 1, Jan. 1958

SO: Monthly Index of East European Accession (EEAI) LC Vol. 7, No. 5, May 1958

Liska, C.

"Principles of the standartization of power consumption and measures for power conservation; experiences from the German Democratic Republic."

p. 245 (Energetika, Vol. 3, No. 6, June 1958, Praha, Czechoslovakia)

Monthly Index of East European Accessions (EEAI) LC, Vol 7, No. 9, September 1958.

LIPKA, C.

Development of energy consumption during the electrification of the VEH mine. p. 18.

UHLI. (Ministerstvo paliv)
Praha, Czechoslovakia
Vol. 1, no. 1, Jan. 1959.

Monthly list of East European Acessions (EEAI), LC, Vol. 8, no. 7
July 1959
Uncl.

LIPKA, C.

"An example of technical help to factories."

ENERGETIKA, Praha, Czechoslovakia, Vol. 9, no. 5, May 1959

Monthly List of East European Accessions Index (EEAI), Library of Congress,
Vol. 8, no. 8, August 1959

Unclassified

LIPKA, Ceslav, ins.

Development of power consumption standardization in the Czechoslovak deep mines. Energetika Cs 11 no.12:640-642 D '61.

PEREDY, Sándor; MONATH, Lajos; RAPELIUS, Karl (Leipzig); CALLENBERG, Waldemar (Leipzig); LIPKA, Ceslav (Praha); FREIBERGER, Rudolf, dr. ing. (Praha); SCHENKEL, Gerhard, dr. ing. (Karlsruhe); MIKULSKI, Jan, dr. ing. (Katowice); FRATZSCHER, Wolfgang, dr. ing. (Drezda); BENEDEK, Istvan; CUKOR, Gyorgy; SAGI, Marton; SOVARY, Emil; NAGY, Csaba (Roman Népkoztársaság); ELEFTERESCU, M. (Roman Népkoztársaság); KOVACS, Istvan (Roman Népkoztársaság); LAZAR, Peter, dr.; MEJRO, Cz., prof. (Varsó); KOKOVAY, János, dr.; SCHAEFER, Helmuth, dr. ing. (Karlsruhe); BORBAS, Nándor; GRUHN, Gunther, Dipl. ing. (Drezda); SZABO, Bendeguz; GYORI, Attila; MOLNAR, László; RECZEY, Gusztav, dr.

Determination and application of specific power utilization indexes. Ipari energia 3 no.1/2:15-22 Ja-F '62.

1. Koho- és Gépipari Minisztérium Ipargazdasági és Uzemszervezési Intézete (for Peredy).
2. Obudai Hajógyár (for Monath).
3. Országos Energiagazdálkodási Hatoság (for Benedek and Reczey).
4. Magyar Tudományos Akadémia Közgazdaságtudományi Intézete (for Cukor and Sagi).
5. Eromu Tervező Iroda (for Sovary).
6. Könnyűipari Minisztérium (for Kokovay).
7. Vörös Csillag Traktorgyár (for Borbas).
8. Kobányai Muanyaggyár (for Szabo).
9. Koho- és Gépipari Minisztérium Energiaosztály (for Molnar).

LIPKA, Ceslav, dipl. ing. (Czechoslovakia)

Problems of energy consumption index numbers in the operation
of mining turbocompressors. Ipari energia 5 no.3:61 M '64.

LIPKA, Istvan; MARGITTAI, Laszlone

Determination of stockkeeping norms in the construction industry enterprises. Pecs1 musz szeml 6 no.1:26-28 Ja-Mr '61.

LIPKA, Istvan

Analytic examination of the octoid profile of straight-toothed
bevel gear wheels. Mugzaki kozl MTA 32 no.1/4:125-136
'63.

1. Szerszamgopfejleszto Intezet, Halasztelek.

LIPKA, I.

21. On the compensation of surface sliding with corrected gears — *A csúszások kiegyenlítésének problémája általános fogással* — I. Lipka. (Machinery — Gép — Vol. 4, 1952, No. 12, pp. 553–559, 2 figs., 2 tabs.)

The article deals with a method for compensating the surface sliding of straight spur gears with an arbitrary centre distance. A good approximation may be obtained by this method. Let $z_1 < z_2$ be the number of teeth of the V-gear couple, g_1, g_2 = base circle radii, r_1, r_2 = tip circle radii, a = centre distance, α = pressure angle. If $+x$ resp. $-x$ are the profile displacement factors (taken for 1 module) of the first or second gear in respect to which sliding is compensated at the end points of the line of action, then

$$x = \frac{(\mu q_1 - \lambda) a_1 + q_1}{b_1 (\mu q_1 + 1) - b_2 (\mu q_1 - \lambda)}$$

where $q_i = \sqrt{r_i^2 - g_i^2}$, $i = 1, 2$, $\mu = (\lambda - 1) / a \cdot \sin \alpha$, $b_i = r_i / q_i$ ($i = 1, 2$), $\lambda = z_2^2 / z_1^2$. This formula is valid for 1 module. Relative sliding factor and x are easily computed by means of the published tables. I. Lipka

Hungarian Technical Abst.
Vol. 5 No. 4 1953

HUNG.

36. Calculation by iteration of the profile modification factor of a pair of gears. — Fogasherdhár profiláltósas korrekciójának kiszámítása iterációval — I. Liska. (Machinery — Gép — Vol. 5, 1953, No. 10, pp. 474-486, 5 figs.)

The article deals with a method for computing the $+x$ and $-x$ values of the profile modification factor (taken for one module) when the values of specific sliding are compensated at the end points of the line of action. Let $z_1 < z_2$ be the number of teeth of the V-gear couple, r_{b1} , r_{b2} = base circle radii, r_{t1} , r_{t2} = tip circle radii and

$$\varphi(y) = \sqrt{\left\{ R - \sqrt{\left(\frac{ay}{\beta y + 1} \right)^2 + r_{t2}^2} \right\}^2 + r_{t1}^2}$$

where $R = r_{t1} + r_{t2}$, $a = (z_2/z_1)^2$, $\beta = (a-1)/d$, d = length of engagement. If y_0 is an initial value then iterative series $y_{i+1} = \varphi(y_i)$, $i = 0, 1, 2, \dots$ converges towards $\bar{y}$. Then $\bar{x} = \sqrt{\bar{y}^2 + r_{t1}^2} - r_{t1}$ is the profile modification factor for which values of sliding are equal at the end points of the line of action. A nomograph is given which illustrates the variations of x for normal centre distances.

LIPKA, I.

Calculation of gears with a minimum loss of swing. p. 277.
Vol 7, no. 7, July 1955. GEP. Budapest, Hungary.

So: Eastern European Accession. Vol 5, no. 4, April 1956

LIPKA, I.

Theory of corrections for profile shifts of straight-toothed cogwheels.
I. (To be contd.) p. 309, GEP (Gepipari Tudomanyos Egyesulet) Budapest,
Vol. 8, No. 8, Aug. 1956

SOURCE: East European Accessions List (EEAL) Library of Congress,
Vol. 5, No. 11, November 1956

LIPKA, I.

Theory of corrections for profile shifts of straight-toothed cogwheels. II.
p. 351 Vol. 9, No. 9 Sept. 1956. GEP. Budapest, Hungary.

SOURCE: East European List, (EEAL) Library of Congress Vol. 6, No. 1
January 1956,

LIPKA, I

Distr: 4E2b(v)

80. Investigation into the deformation of spindles and the problem of minimizing deformation. (In English) I. Lipka. *Acta Technica Academiae Scientiarum Hungaricae*, Vol. 21, 1958, No. 1-2, pp. 27-45, 5 figs.

The hollow shafts -- termed spindles -- employed on machine tools are deformed by loads (cutting and driving forces). This considerably affects machining accuracy. The deflection of the spindle also depends not merely on the elastic deformation but on the distance between the spindle bearings as well. The paper deals with the elastic deformation of spindles consisting of sections with varying cross sections and determines the extreme value with a view to reducing the deflection of the spindle nose to a minimum. The analysis of the extreme value shows there is an optimal bearing distance at which the deflection is minimum. With stress-relieved drives (when the driving elements are not directly mounted on the spindle), it was found that the optimum distance between the bearings decreases when the diameter of the individual spindle sections is measured by the same value. A few practical examples show to what extent the actual distance between the bearings approximates the optimum value.

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LIPKA, I.

Remarks on the dissertation "Mathematical Solution of a Tool-Geometrical Problem" by I. Drahos, Jr., Laszlo Hornyik, and Miklos Hosszu. p. 219

MAGYAR TUDOMANYOS AKADEMIA MATEMATIKAI KUTATO INTÉZETÉNEK KOZLEMENYEI.
PUBLICATIONS OF THE MATHEMATICAL INSTITUTE OF THE HUNGARIAN ACADEMY OF
SCIENCES. Budapest, Hungary. Vol. 3, no. 3/4, 1958

Monthly list of East European Accessions (EEAI). LC. Vol. 9, no. 1, Jan.,
1960.

Uncl.

LIPKA, I.

The geometry of convex raceways of roller bearings. Acta techn Hung
31 no.3/4:359-390 '60. (EEAI 10:4)

1. Institut für das Entwickeln von Werkzeugmaschinen,
Halasztelek bei Budapest.
(Roller bearings)

LIPKA, Istvan

A theory of the derivation of polygon profiles. *Muszaki kozl MTA* 19
no.1/4:109-123 '61.

1. Szerszamgefejlesztó Intézet, Halasztelek.

LIPKA, Istvan, Dr.

Correlations between geometrical and machining accuracy.
Gep 14 no.5:171-176 My '62.

1. Szerszámgepfeljeszto Intemat.

LIPKA, Istvan

Control of the wire guide of a cross winding machine. Magyar techn
12 no.6:242-245 D '61.

1. Szerszámgepfeljeszto Intezet.

LIPKA, I.

Geometrical evaluation of the quality of surfaces machined by means of a single-pointed cutting tool. Acta techn Hung 44 no.1/2:119-148 '63.

1. Institut für Entwicklung von Werkzeugmaschinen, Halaszelek.

LIPKA, I.

Analytic examination of the octoid profile of straight-toothed bevel gears. Acta techn Hung 48 no. 1/2:31-60 '64.

1. Institut für die Entwicklung von Werkzeugmaschinen, Halasztelek.

LIPKIN, I.L. (Moskva)

Cancerogenic substances in the aniline dye industry and
prophylactic measures. Gig.truda i prof.zab. 6 no.6:17-24
Je '62. (MIRA 15:12)

1. Nauchno-issledovatel'skiy institut gigiyeny imeni F.F.
Erismana.

(CARCINOGENS) (ANILINE--TOXICOLOGY)
(OCCUPATIONAL DISEASES--PREVENTION)

LIPKA, J.

196/121

629.13.014.71

The Problem of Bending of
Helicopter Rotor Blades

Tech. Letn.

10(5), 137-142

Sept./Oct., 1955

Poland

AS

J. Lipka

The derivation of the differential equation of the deformed main rotor blade is shown together with the simplifying assumptions made. This is followed by a concise presentation of the different methods suggested for the solution of that equation yielding the bending moment distribution along the blade. The methods of de la Cierva, K. Hohenemser, J.B.B. Owen, Galerkin, Stuart-Myklestad, and the collocation method of Frazer and Jones are illustrated by a numerical example permitting the comparison of the results obtained. Remarks on the merits of the various methods are included. (Bibl.7)

JP

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APPROVED FOR RELEASE: 07/12/2001

CIA-RDP86-00513R000930020014-2"

LIŃKA, J.

Determination of bending moments of helicopter blades in hovering. Pt. 1. (To be contd.)

p. 141 (Technika Lotnicza. Vol. 12, no. 5, Sept./Oct. 1957. Warszawa, Poland)

Monthly Index of East European Accessions (EEAI) I.C. Vol. 7, no. 2,
February 1958

5780 620.178.3 3
 Lipter J. Self-Vibrations of Single and Continuous Orthotropic
 Plates.

"Organizacja własne płyt ortotropowych pojedynczych i ciągłych".
 Archiwum Budowy Maszyn (PAN). No. 1, Warszawa, 1958, pp. 10-52,
 17 figs., 6 tabs.

This paper deals with the self-vibrations of rectangular ortho-
 tropic plates, single and continuous, supported at the edges in various
 ways. It consists of two parts: in the first, the author investigates
 the self-vibrations of the plates, seeking the solution of a differential
 equation; in the second, the energetic method (of Galerkin) is applied
 to the same plates. The considerations are extended to multilayered
 plates and to plate structures. To facilitate and accelerate calculations,
 the paper includes several tables and auxiliary diagrams concerning
 continuous plates most common in practice. The examples given at
 the end, for calculating angular frequencies of the self-vibrations of
 various plates, are prepared by both methods. They show that the
 differences in the results are very small and that the energetic
 method with the use of the tables or diagrams included requires much
 less time.

16,3400

35867

S/044/62/000/002/060/092
C111/C444

AUTHOR: Lipka Jerzy

TITLE: On the choice of the functions in the method of Galerkin
and in the collocation method

PERIODICAL: Referativnyy zhurnal, Matematika, no. 2, 1962, 34,
abstract 2V184. ("Zesz. nauk. Politechn. warsz.", 1959,
no. 43, 51-61)

TEXT: Considered is the choice of the function as a series,
every term of which satisfies the numerically given boundary conditions
of the differential equation.

[Abstracter's note: Complete translation.]

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26611
P/032/60/007/003/001/002
D259/D301

AUTHOR: Lipka, Jerzy (Warsaw)

TITLE: The effect of rotating inertia and shearing forces on the vibrations of rotating bars

PERIODICAL: Archiwum budowy maszyn, v. 7, no. 3, 1960,
283 - 294

TEXT: The article presents the mathematical treatment of the effect of rotating inertia and shearing forces on the free vibrations of rotating bars. In his presentation, the author refers to his previous work (Ref. 1: Archiwum budowy maszyn, PWN, Warsaw, 1956, v. 3), on which he also bases a number of his derivations and computations. The question arising in connection with the problem of free vibrations of rotating bars is that of the degree of influence of shearing forces and rotating inertia on the vibrations frequency. The effect of these two factors depends on the length and cross section of the rotating bar. As a basis for his treatment, the author takes a bar rotating with

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The effect of rotating inertia...

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the angular velocity Ω , simultaneously performing transverse vibrations and not affected by any external forces, but only by forces of the mass caused by centrifugal accelerations and transverse vibrations. Such a bar represents an elastic system vibrating freely, in which the sum of the kinetic and potential energy at any given moment is a constant. By introducing the system of orthogonal axes, the basic calculations of the energy involved in the vibrations of rotary bars is obtained. Relations representing the energy of rotating inertia and shearing forces are derived from the energy method taking into account the kinetic and potential energy involved. The computations obtained, although approximate, satisfy the boundary conditions and the orthogonality of functions. Results of calculations carried out on the free vibrations of a propeller blade on the basis of functions presented by the author in his previous work show that:

- 1) The rotating inertia and shearing forces cause a decrease in the magnitude of the coefficients of free vibrations of the

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D259/D301

The effect of rotating inertia...

first, second and third order at squared angular velocity and of calculation frequencies of free vibrations; this decrease is negligible in case of greater length, but increases with the decrease in length; 2) The effect of the two factors, i.e. the rotating inertia and shearing forces, on the angular frequency of any order of free vibrations of a bar at rest per sec.⁻¹, and on the free vibration coefficients is clearly represented by components of higher order; 3) The mass, bending stiffness and product of mass and force also have an effect on the magnitude of free vibration coefficients; 4) The shearing forces affect more the magnitude of free vibration coefficients and angular frequency than the rotating inertia. There are 1 figure and 1 Soviet-bloc reference. ✓

SUBMITTED: January, 1960

Card 3/3

P/532/61/000/015/001/003
D237/D508

AUTHOR: Lipka, Jerzy, Docent, Doctor of Engineering
TITLE: The form of rotating heated disks with prescribed effective stress $\delta_{red} = k_r(r, T)$
SOURCE: Warsaw. Instytut Lotnictwa. Prace, no. 15, 1961, 3-7

TEXT: The author gives a simple method for designing rotating heated disks when the temperature and physical properties dependent on it are arbitrary in the radial direction. It is assumed that all loads are axially symmetric and the disk, the physical properties of which are axially symmetric, is elastic. Differential equations of the system are solved by the method of finite differences and a graphical solution of resulting difference equations (straight line and ellipse) makes the determination of stresses at any point of the disk easy. The difference equation of the internal equilibrium, is the equation of the radial profile of the disk for a given stress distribution. Thus, the design of disks of uniform

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The form of rotating heated ...

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D237/D308

strength or of predetermined strength distribution can be performed both accurately and quickly. A numerical example of the turbine disk is given. There are 9 figures and 1 table. The most important English-language reference is S.S. Manson - 'Direct Method of Design and Stress Analysis of Rotating Disks with Temperature Gradient'. NACA Report 952.

SUBMITTED: September, 1961

Card 2/2

LIPKA, Jerzy, doc. dr.; HURT- HURTALIK, /rson, mgr inz.

Axially symmetric thin-walled structures. Inst lota prace
n.22:3-9 164

Auxilliary solutions for the computation of composite thin
walled structures. Ibid.:10-65

L 33921-65 EPR/EWT(m)/EWP(b)/T/EWA(d)/EWI(w)/EWP(t) EM/JD

ACCESSION NR: AP5002845 P/0032/64/011/004/0779/0793

AUTHOR: Lipka, J. (Warsaw); Lobzowski, J. (Warsaw)

TITLE: The effect of permanent strain at points of stress concentration on the fatigue strength

SOURCE: Archiwum budowy maszyn, v. 11, no. 4, 1964, 779-793

TOPIC TAGS: stress concentration, fatigue strength, steel fatigue, permanent strain, carbon steel, structural steel

ABSTRACT: The presence of local stress concentrations in a steel strip causes a considerable reduction in the permissible stresses or the life of the element. The paper describes tests made, using a fatigue-testing machine, in order to determine the effect of plastic strain at the points of stress concentration on the fatigue strength of structural, high-quality, carbon steel strip. The chemical composition and the mechanical properties of the steel used are tabulated. The strips, 60 mm wide and 2.5 mm thick, had a circular hole, 6.0 mm in diameter, drilled in the middle of the width, around which plastic strain was produced by a bushing made of hardened steel and 12-14 mm in diameter. The applied pressure was carefully mea-

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sured so as to obtain stresses near or exceeding the plastic limit of the steel tested. The tests consisted in the determination of the number of cycles of external loading prior to specimen failure. The results of the tests are collated in the form of a statistical report and analyzed. The tests showed that the specimens failed by fatigue which, as a rule, started to develop at the hole at the two places closest to the side of the strip. The average number of loading cycles prior to fatigue failure was higher for specimens with plastic strain than specimens without plastic strain. The appearance of the fracture is described (almost flat, small grain, with straight edges). In the vicinity of the two points where the fracture begins, a narrow region of work hardening was noted. It is suggested that there must be an optimal value of plastic strain diameter and of loading to produce it, which would give optimal fatigue characteristics. The statistical presentation of the results obtained shows clearly that permanent strain of the type under consideration has an effect on the fatigue strength. Orig. art. has: 37 figures, 5 tables and 7 formulas.

ASSOCIATION: None

SUBMITTED: 00Jun64

ENCL: 00

SUB CODE: MM

NO REF SOV: 000

OTHER: 000

Card 2/2

ACC NR: AP7005545 (4) SOURCE CODE: PO/0032/66/013/004/0499/0503

AUTHOR: Lipka, Jerzy (Warsaw); Lobzowski, Jerzy (Warsaw)

ORG: none

TITLE: Fatigue strength of strips of aluminum-base alloy with residual strain in the area of a hole

SOURCE: Archiwum budowy maszyn, v. 13, no. 4, 1966, 499-503

TOPIC TAGS: alloy, fatigue strength, aluminum base alloy, machine industry /W 95 aluminum alloy

ABSTRACT: The paper presents the results of research on the effects of residual stresses in the outer area of the hole on tensile strength. The tests involved strip of light alloy with holes in the middle section. The amount of residual strain was achieved by rubbing cylindrical bushings against the lateral surface of the test piece in the area of the hole. It was found that the number of load cycles necessary to produce failure is greater for the test pieces with residual deformation. Orig. art. has: 1 figure and 3 tables. [Based on authors' abstract] [DR]

SUB CODE: 11, 20/SUBM DATE: 00Feb66/ORIG REF: 002/

Card 1/1